REMARKS

I. SUMMARY OF OFFICE ACTION

In the Office Action, Claim 31 was objected to for various informalities. Claims 19-22 were rejected under 35 U.S.C. 103(a) as being unpatentable over Grimmel et al. (US Patent No. 6,543,712) in view of Lewis et al. (US Patent No. 4,643,592) and Eakman et al. (US Patent No. 5,714,818). Claims 23-26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Grimmel et al. in view of Lewis et al. and Eakman et al. as applied above and further in view of Raimondi (US Patent No. 3,680,932). Claim 27 was rejected under 35 U.S.C. 103(a) as being unpatentable over Grimmel et al. in view of Lewis et al. and Eakman et al. and further in view of Dede (US Patent No. 6,135,639). Claims 28-31 were rejected under 35 U.S.C. 103(a) as being unpatentable over Grimmel et al. in view of Lewis.

II. APPLICANT'S RESPONSE

A. Claim Objections

By this Amendment, Applicant has cancelled Claim 31. As such, the objection to Claim 31 is now moot.

B. Claim Rejections – 35 U.S.C. 103

By this Amendment, Applicant has cancelled Claims 28-31. As such, the rejections of Claims 28-31 made in the Office Action are now moot.

In the Office Action, Claim 19 was rejected under 35 U.S.C. 103(a) as being unpatentable over Grimmel et al. in view of Lewis et al. and Eakman et al. The Examiner contends that Eakman et al. discloses a bearing element developing a hydrodynamic layer and being a passive component. The Examiner states that "it would have been obvious to include the oil film bearing as disclosed by Lewis et al. and the passive hydrodynamic bearing taught by Eakman et al. in the invention of Grimmel et al., since Lewis et al. also uses this technique for vibrations and the invention of Eakman is concerned with hydrodynamic components creating eccentric rotation of the shaft within the bearing, which would cause vibration in the device, and a person of ordinary skill in the art would have applied these configurations for reducing the vibration in the layer head".

Applicant respectfully submits that incorporating the teachings of Lewis and Eakman et al. into Grimmel et al. would not result in the invention recited in Claim 19. In particular, in the Eakman et al. device, the hydrodynamic bearing is a backup bearing where the passive component is used in the backup mode. When the primary magnetic bearing fails, then the backup hydrodynamic bearing prevents damage to the magnetic components. Each side of the shaft has primary and backup bearings. To incorporate the Eakman et al. passive oil bearing of the hydrodynamic type into the Grimmel et al. and Lewis et al. combination, four bearings must be designed into the system. Two bearings on each side of the shaft. The primary and the back up bearing of Eakman would be incorporated into Grimmel. Four (4) bearings would be utilized, namely, (1) the magnetic bearing and its (2) backup bearing on one side of the rotating shaft as well as the (3) magnetic bearing on the other side of the rotating shaft and its (4) backup bearing. Claim 19 expressly recites only two bearings.

Additionally, Eakman fails to disclose a passive oil film bearing of the hydrodynamic type. Eakman discloses a hydrodynamic air bearing. (col. 3, ln. 63 of Eakman). Lewis discloses an active, not passive oil bearings as discussed in the Summary of the Invention section of Lewis. Moreover, combining the teachings of Eakman and Lewis would require a substantial redesign as discussed above.

For the foregoing reasons, the combination of the prior art references proposed by the Examiner do not disclose only two bearings wherein at least one of the bearings is a passive oil film bearing of the hydrodynamic type as recited in Claim 19.

Moreover, there is no motivation to modify the cited prior art to have only two bearings wherein at least one of the two bearings incorporates vibration dampening means comprising a passive oil film bearing of the hydrodynamic type. To modify the cited prior art to have only two bearings wherein at least one of the bearings is a passive oil bearing of the hydrodynamic type, one of ordinary skill in the art must eliminate the primary magnetic bearings of Eakman and use the backup air bearing disclosed in Eakman as the primary bearing. Moreover, one of ordinary skill n the art must convert the hydrodynamic air bearing disclosed in Eakman to a hydrodynamic oil bearing by combining the teachings of Eakman and Lewis. Moreover, the active bearing disclosed in Lewis must be combined with the bearing of Eakman.

Applicant respectfully submits that Eakman teaches that the backup hydrodynamic air bearings are less desirable compared to the primary magnetic bearings due to clearance and centering issues. (see col. 2, lns. 27-58 of Eakman). The magnetic bearing has a long life, no mechanical wear, can support high rotational speeds and minimal friction losses. (col. 1, lns. 27-35 of Eakman). The backup bearings only support the shaft when the shaft is not rotating or when the electrical power to the magnetic bearing is interrupted. (col. 1, lns. 12-26 of Eakman). Accordingly, Eakman teaches away from utilizing hydrodynamic air bearings as the primary bearing and as the sole bearing. MPEP § 2144.05(III) states that "a *prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention."

Moreover, the hydrodynamic air bearing of Eakman must be converted into a hydrodynamic oil bearing which have different operating characteristics compared to the hydrodynamic air bearing by combining the teachings of Lewis and Eakman. As understood, this would require a significant redesign. The reason is that oil type bearings has different characteristics compared to air type bearings. Oil has a higher viscosity compared to air. Oil would produce more friction than air. Oil must be contained so that it does not leak. Oil poses a different set of problems compared to air. As understood, the Examiner suggests that there is motivation to combine the oil bearing of Lewis and the hydrodynamic air bearing of Eakman. Applicant respectfully disagrees. MPEP § 2143.01 states that there is no motivation to combine references where the "combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate." (emphasis added). To incorporate the technologies in different types (e.g., air / oil) of bearings, a substantial redesign is required. For the foregoing reasons, there is no motivation to modify the Eakman reference (1) from a hydrodynamic air type bearing to a hydrodynamic oil type bearing then (2) to further modify Eakman to eliminate the backup bearing and (3) make the modified hydrodynamic oil type bearing as the only bearing in Grimmel.

Accordingly, one of ordinary skill in the art would not modify the Eakman bearings from oil to air and make the backup bearing the only bearing then incorporate modified bearing into the Grimmel device. Hence, Claim 19 is believed to be in condition for allowance.

The dependent claims of Claim 19 are also believed to be in condition for allowance for containing additional patentable subject matter. By way of example and not limitation, Claim 32 further recites that one bearing is located on each of the opposed sides of the rotor. This claim expressly recites that the bearing supports the rotor and only one bearing supports the rotor on each side. Hence, there are only two bearings. As discussed above, Applicant respectfully submits that the cited prior art does not disclose, suggest or make obvious such subject matter. Hence, Claim 32 is also believed to be in condition for allowance for containing additional patentable subject matter.

III. CONCLUSION

For the foregoing reasons, Applicant respectfully submits that all pending claims are believed to be in condition for allowance. An early notice of allowance is therefore respectfully requested. Should the Examiner have any suggestions for expediting allowance of the above identified application, the Examiner is invited to contact Applicant's representative at the telephone number listed below.

If any additional fee is required, please charge Deposit Account Number 19-4330.

Respectfully submitted,

Date: 3/7/11 By: _____

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